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Contribution from the Bureau of Entomology, L. O. Howard, Chief.

THE FALSE CHINCH BUG¹ AND MEASURES FOR CONTROLLING IT.

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INTRODUCTORY.

The grower or gardener of the plateau region east of the Rocky Mountains is often alarmed to note that his sugar beets or cabbages, which a day or two previously had been apparently free from insects, are swarming with minute, active, grayish bugs which, by their numbers, threaten the profitable harvesting of his crop. These insects belong to the species commonly known as the false chinch bug.

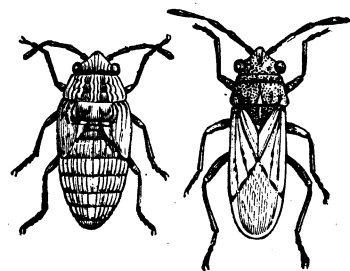


FIG. 1.—The false chinch bug (*Nysius ericae*): Adult at right, last stage of nymph at left. Highly magnified. (Adapted from Riley.)

A severe outbreak of this pest, especially in Kansas and Colorado, during May and June, 1916, makes it desirable to inform market gardeners and sugar-beet growers of the best means that have been developed for combating it in that region. The ability to recognize the insect when it appears and a knowledge of its life history and habits are essential to the successful application of remedial measures.

The adult false chinch bug (fig. 1) is about one-eighth of an inch long and one-twentieth of an inch wide, or about half the length and half the width of a grain of wheat. To one familiar with the true chinch bug it is sufficient to say that the false chinch bug resembles it, including the offensive odor, but is more slender, and there is no

¹ *Nysius ericae* Schill. (*N. angustatus* Uhl.); family Lygaeidae, order Hemiptera, suborder Heteroptera. 55507°—Bull. 762—16

black on the wing covers. Others will recognize the insect from the description given above and its dull gray body, which is black beneath and half covered by its whitish wings. The young are wingless and may be recognized from their occurrence with the adults.

GENERATIONS AND FOOD HABITS.

The number of generations, or "broods," produced annually depends upon the temperature, the latitude, and the season. At Garden City, Kans., there are at least five. The early spring and the late fall broods deposit their eggs in the surface cracks of the soil and in pulverized soil. During the hottest weather they thrust their eggs among the clustered parts of plants, such as the heads of the great-flowered gaillardia,¹ the flowering parts of carpet-weed,² and the glumes of "stink-grass" or strong-scented love-grass.³

When the young are hatched they feed almost exclusively on weeds, especially on pepper-grass,⁴ shepherds-purse,⁵ thyme-leaved spurge,⁶ Russian thistle,⁷ and sage-brush.⁸ *Monolepis nuttalliana* (R. & S.), which has no common name, is also included in the list of food plants. At maturity the adult bugs scatter over all vegetation. If drought prevails they are compelled to gather on cultivated crops, preferring crucifers or cole crops and beets, but they have been observed feeding on corn and kafir. Seed beets during the second year's growth suffer especially.

While feeding, the false chinch bugs congregate in large numbers on a few plants. Here they remain until the sap is exhausted and the plants wilt, after which they collect on such other plants as are growing close by. When disturbed, the adults dart quickly to the ground or to adjoining plants. Those alighting on the ground crawl to plants when the disturbance ceases.

CONTROL MEASURES.

DESTRUCTION ON WILD PLANTS.

The false chinch bug may frequently be controlled by destroying it on its wild food plants, and since the effect on such plants need not be considered, this may be accomplished satisfactorily by burning, which is particularly effective when there is enough dead and dry vegetation on the ground to carry fire. This will compass the destruction of many of the adults as well as great numbers of the young. Burning may be facilitated by scattering straw or similar dry material over the infested area, and when the insects are massed on weeds or clumps of wild vegetation they can be destroyed by the use of a strong-blast gasoline torch. The best type of torch, costing

¹ *Gaillardia pulchella* Foug.

² *Mollugo verticillata* L.

³ *Eragrostis major* Host.

⁴ *Lepidium virginicum* L.

⁵ *Bursa bursa-pastoris* L.

⁶ *Chamaesyce serpyllifolia* Pers.

⁷ *Salsola tragus* L.

⁸ *Artemisia tridentata* Nutt.

about \$18, should be employed for this purpose. The ordinary plumber's torches are not satisfactory for field work, as they are almost certain to become overheated so that the operator can not use them, and in a short time the heat destroys their usefulness. The value of hand torches for insecticidal purposes is extremely limited, and growers are apt to expect too much from their use. They are applicable to only a few forms of insects, of which the present species is one.

DESTRUCTION BY CONTACT POISONS.

Adults which attack cabbages or sugar beets are readily killed by a spray of about 1 pound of fish-oil soap or strong laundry soap to 5 gallons of water. On turnips and radishes such a solution is too strong, and a solution of 1 pound of soap in 10 gallons of water with 1 part of nicotine sulphate in 1,000 parts of water should be used. Other crops whose resistance to strong soap solutions is not known should be treated with the latter solution. Those insects that survive the first treatment soon collect on other plants, where they may be destroyed by another spraying.

To spray an infested plant successfully it must be approached without disturbing the bugs and the nozzle held high enough above it to allow the cone of spray to surround the plant. The spray should then be turned on and the nozzle gradually lowered in order to wet the bugs on the ground, after which it should be directed among the leaves to wet those which are sheltered. It is best to attach the nozzle to the end of a 4-foot rod and to set it at right angles to the rod by means of an elbow.

CAPTURING THE BUGS ON STICKY SHIELDS.

A sticky shield for capturing the false chinch bug on plants that can not be sprayed has been developed by Mr. H. O. Marsh, of the Bureau of Entomology, and Mr. W. W. Tracy, jr., Bureau of Plant Industry, working at Rocky Ford, Colo. This shield consists of burlap, or gunny, stretched over a back of thin boards and protected by poultry netting which is tacked to end pieces 1 by 4 inches. Crude petroleum is spread on the burlap and sprinkled with kerosene to soften it. The shield is then held alongside the infested plant and the bugs driven onto it by striking the other side of the plant with a beater made of a piece of canvas tacked to a flat handle. The netting prevents the plant from brushing the oil off of the shield, but does not interfere with the bugs darting against it and sticking in the oil, or at least becoming sufficiently smeared to insure their death. The diagram (fig. 2) illustrates the construction of a shield and beater.

A convenient size of shield is 24 by 30 inches, and of the beater, 14 by 14 inches. Such a shield can be operated by one man, but better results can be secured by two. The petroleum and kerosene must be renewed frequently.

To combat this pest successfully and to prevent losses to his crops the grower should apply remedies at the very beginning of an attack. If the outbreak covers a large area, all growers in the locality should cooperate, as crops may be attacked anywhere in the neighborhood.

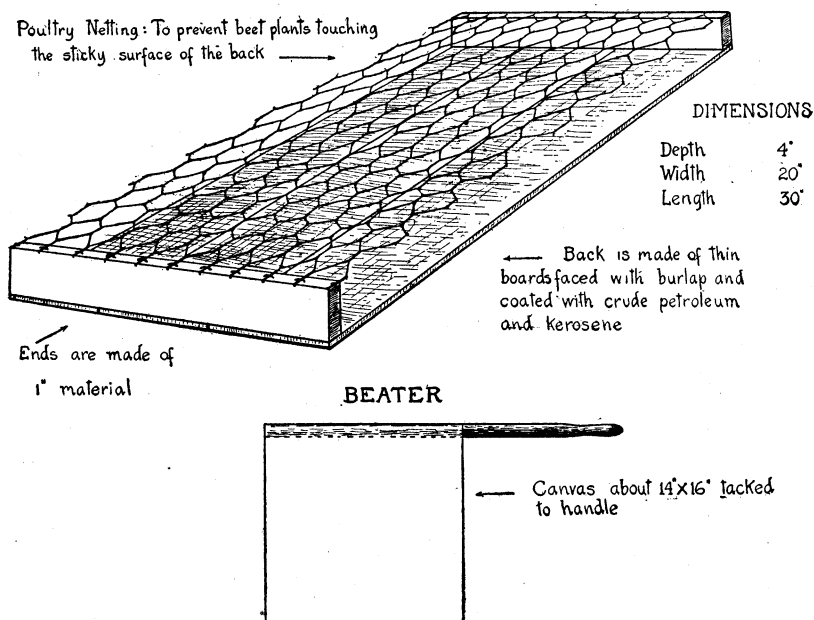


FIG. 2.—Sticky shield and beater for destruction of false chinch bugs on flowering beets. (Original.)

After the adult bugs have collected on a certain area, their destruction will usually end the damage by that brood. However, if others of the same or of succeeding broods are driven on later by the dying of adjacent vegetation, another application of remedial measures will be necessary. The more completely the earlier generations in a given year are destroyed, the less will be the damage by later generations during the same year; and the more thoroughly control measures are practiced during any year, the less is the danger of severe outbreaks the next year.